SOLID-STATE LIGHTING
Operational Plan

The U.S. Department of Energy (DOE) supports domestic research, development, demonstration, and commercial application of advanced solid-state lighting (SSL) technologies that are significantly more energy efficient than current lighting technologies. Guided by a Government-industry partnership, the mission is to create a new, U.S.-led market for high-efficiency, general illumination products through the advancement of semiconductor technologies, to save energy, reduce costs, and enhance the quality of the lighted environment.

The Department has set aggressive targets for SSL R&D: By 2025, to develop advanced SSL technologies that, compared to conventional lighting technologies, are much more energy efficient, longer lasting, and cost-competitive. DOE is targeting a product system efficiency of 50 percent with lighting of a high quality spectrum.

The SSL Operational Plan

DOE has structured a SSL operational plan (see Figure 1) that features two concurrent, interactive pathways:

- **Core Technology Research**, conducted primarily by academia, national laboratories, and research institutions
- **Product Development**, conducted primarily by industry

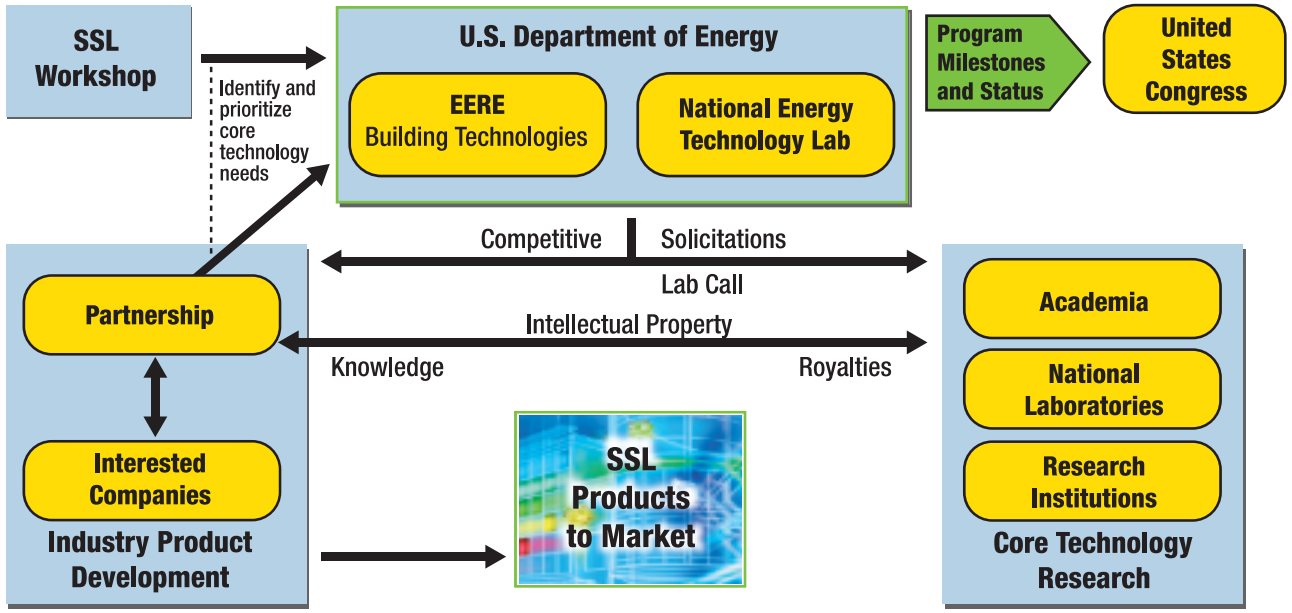
Although the pathways and participants described here are typical, some cross-over does occur. For example, a product development project conducted by industry may include focused, short-term applied research, as long as its relevance to a specific product is clearly identified and the industry organization abides by the solicitation provisions. For more detailed definition of the SSL R&D pathways, see DOE's SSL R&D website at *www.netl.doe.gov/ssl/definition.html*.

The operational structure also includes innovative intellectual property provisions and a **SSL Partnership** that provides significant input to shape the Core Technology Research priorities.

SSL Partnership

In 2004, DOE competitively selected a SSL Partnership composed of manufacturers and allies that are individually or collaboratively capable of manufacturing and marketing the desired SSL products. Partnership members must comply with pertinent DOE guidelines on U.S.-based research and product development.

Structure of SSL Operational Plan (Figure 1)



A key function of the SSL Partnership is to provide input to shape the Core Technology Research priorities. As SSL technologies mature, any research gaps identified will be filled through Core Technology Research—allowing the SSL industry to continue their development process, while much-needed break-through technologies are created in parallel. The Partnership members confer among themselves and communicate their individual research needs to DOE program managers, who will, in turn, shape these needs into the Core Technology Research solicitations.

Product Development

DOE solicits proposals from interested companies (or teams of companies) for product development, demonstrations, and market conditioning. DOE expects these proposals to include comprehensive work plans to develop a specific SSL product or product family. Since the ultimate goal is to manufacture energy-efficient, high performance SSL products, each work plan should address the abilities of each participant or manufacturer throughout the development process. These offerors must not only have all the technical requirements to develop the desired SSL technology, but also must have reasonable access to manufacturing capabilities and targeted markets to quickly move their SSL product from the industry laboratory to the marketplace.

Core Technology Research

Core Technology Research provides the focused research needed to advance SSL technology—research that is typically longer-term in nature and not the focus of sustained industry investment. DOE funds these research efforts primarily at universities, national laboratories, and other research institutions through one or more competitive solicitations.

Core Technology Research supports the SSL program by providing problem-solving research to overcome barriers identified by the Partnership. Participants in the Core Technology Research program perform work subject to what is termed an "exceptional circumstance" to the Bayh-Dole Act, and any resultant intellectual property will be open, with negotiated royalties, to all Partnership members with a non-exclusive license. At DOE's discretion, Core Technology Research projects will be peer-reviewed by Government personnel, independent organizations, and the SSL Partnership.

High-Level Timeline

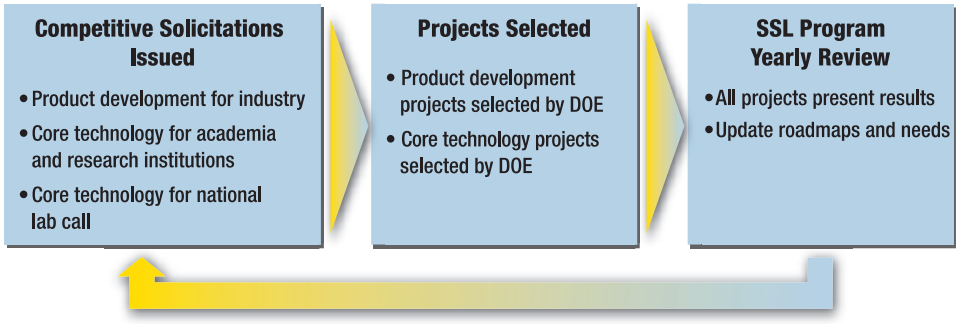
Figure 2 details the high-level timeline for the SSL Operational Plan. Each year, DOE expects to issue at least three competitive solicitations:

- Core Technology Research Solicitation
- Core Technology to National Labs (Lab Call)
- SSL Product Development Solicitation

A number of annual meetings will be held to provide regular DOE management and review checks, and to keep all interested parties adequately informed. More specifically, these meetings will:

- Provide a general review of progress on the individual projects (open meeting)
- Review and update the R&D plan for upcoming "statement of needs" in future solicitations (open meeting)
- At DOE's discretion, provide a peer review of Core Technology Research projects
- Provide individual project reviews by DOE

SSL Operational Plan Process (Figure 2)



This document is intended to provide an overview of the high-level structure of the DOE SSL program. More detailed program documents, such as annual solicitations and contract agreements, take precedence over information in this document.